

*for Wecht*

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Dr. Cyril Wecht  
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Dear Dr. Wecht:

Thanks for your letter of 30 November, in which you discuss my assertions to Paul Hoch respecting the metallic fragments visible in X-rays of President Kennedy's head. I was happy to receive your comments, but distressed because, even after considering them carefully, I disagree strongly with nearly everything that you say. I regret now that I disclosed that material to you in the form of a letter to a fellow "buff", for I omitted reference to a lot of things that bear on the topic, but which I knew Hoch understood.

In part to alleviate the deficiencies of that letter, and in part also to disclose to you the broad line of my thinking, I am enclosing herewith a draft of an almost-completed monograph that I am preparing about the fragments. The monograph currently lacks three things; I am awaiting replies from various sources and the completion of certain tests, but I do not think that these will cause me greatly to alter either the basic conclusions or the words in which they are presented. I may make some additions augmenting what I have already written, but they are of such nature as not to change what is already written.

I have written to Dr. Morgan seeking verification that the drawing on p. 9 approximately represents the disposition of the fragments; I also asked that he recommend changes in the drawing, if they seemed warranted. Moreover, I have written to an authoritative source who is able accurately to answer the question whether a lead alloy projectile, unprotected by copper jacketing material, can burst or otherwise shed fragments of itself in the course of passage through soft material at a velocity of 1800 feet per second. (This is in connection with the paragraphs absent from p. 16). In regard to that same question, I am preparing to do tests of my own. (Even now I can anticipate the answer on the basis of a certain type of knowledge tantamount to good guessing based on reading. I am quite sure that such a projectile would not burst or would not otherwise shed many small fragments.) The third thing that I lack (in connection with paragraph 37) is photographs illustrating the effects of bursting high velocity frangible bullets. I have seen photographs of the type that I want, and know where I can locate them. I am currently awaiting arrival.

In reference to the objections that you raise in your 30 November letter, I think none of them are warranted.

Your first paragraph (1) implies that there is a legitimate question whether in fact there were metallic fragments in the President's brain. It suggests that the radiopaque images may result from some fault in the films, in the process of developing, or in the equipment taking the films.

The three films seen by the Panel doctors are not the only ones that were seen, and not the only ones referred to by those who described the fragments. Dr. Humes, Mr. Kellerman, and FBI agents Sibert and O'Neill report the existence of fragments with respect to all the X-rays of the head. These four persons viewed all the X-rays on the evening of the assassination. To these we may add Drs. Finck and Boswell who, although neither specifically mentions the fragments, concurred in Dr. Humes' statements about them to the Warren Commission, and concurred in the description of them presented in the official autopsy report. It seems a reasonable presumption that the opaque images were visible on all of the head X-rays, since there is not the least indication to the contrary in any records pertaining to the X-rays.

The knowledge that these radiopaque images did not occur in X-rays taken of other parts of the body suggests strongly that the equipment was not faulty, and that the process of developing the films was sound.

I must dispute your assertion (2) that "the thrust of (my) argument is mainly based on complete and total fragmentation of the bullet on entry." I did not suggest that, and did not intend to imply it, for I strongly believe that it is not true. If I knew precisely what cartridge was used I might be able to make a suggestion regarding the degree of frangibility, but in present circumstances I cannot and would not. In my letter to Hoch I emphasized my belief that the fragments in the brain do not constitute all of the remnants of the bullet that struck and burst, and I indicated the means whereby other parts of the bullet might (and probably did) terminate elsewhere than in the brain.

I further dispute your statement that bullets which fragment severely on impact with hard and soft parts of the body do little or no damage internally. I know from considerable experience and by other substantial means that the opposite is true: that light-weight frangible bullets which strike targets at ~~my~~ very high velocity produce severe damage internally. (I believe that you are referring to gallery loads, frangible bullets fired at very low velocity in shooting galleries, but these do not in the least enter into my considerations.) Certain cartridges fire bullets that fragment very severely on hard and soft targets, and produce massive damage internally by virtue of their fragmentation.

Cartridges of the type used in varmint hunting fire bullets which regularly fragment when they strike animal targets, no matter whether the surface be hard or soft, and regularly produce grossly mutilated wounds. Cartridges of this type are so well known to me that I have taken it for granted that others know about them, but I now realize why it is that many people do not (even criminologists). They seldom figure in crimes of violence, in suicides, or in accidents, for they are used in a specialized type of hunting by ~~xxxxxxofxhunterxxxxxxandxxxxxxxxxxxx~~ the sort of hunters who, as a group, tend to be more cautious of themselves and their fellow man than other persons who use firearms. Generally they are experienced hunters and excellent marksmen devoted to their sport.

Even though the type of shooting is specialized, the cartridges involved in varmint hunting are readily available and regularly employed. They are designed to have their bullets fragment on animal targets, and are designed to produce excessive damage to the target, for varmint hunters, who do not eat the animals that they shoot, are careless of mutilating flesh and bone, but very careful of instant kills. They use bullets that are light-weight and frangible, and bring them to their targets at exceedingly high velocity.

My personal experiences with cartridges in this class are chiefly with these: .222 Remington, .22/250, .243 Winchester (with 80 grain bullet), and .270 Winchester (with 100 grain bullet, or 130 gr. hollow-point). The effects produced by these common cartridges are not different from the effects produced by the several other cartridges in this class. Using cartridges such as these, I have caused or witnessed the wounding of animals ranging in size from ~~rats~~ rats to brush wolves.

I have seen and sometimes closely examined wounds produced by such bullets when they struck soft flesh and when they struck hard bone. Occasionally I have sought and recovered minute fragments from the wounds (although not for purposes associated with my interest in the assassination). Where such bullets have penetrated soft parts of animal bodies, I have seen entrance holes so small that they appeared to have been caused by a pencil point; below such holes, just under the surface, I found flesh mutilated almost beyond recognition, indescribably mangled. In instances where such bullets have struck bony parts, I have seen holes as large as your outstretched hand-- holes produced where the bullet entered. (I vividly remember sticking my head through the pelt of a wolf that had been shot in the shoulder by a 100 grain .270 at a range of about 50 yards. I was assured that that hole occupied the place where the bullet struck, not where it exited, and that the margins of the hole in the pelt had not been cut to that size.)

I admit that I have not examined such wound with the intent of comparing them with the President's head wound, but my recollection of them is vivid enough so that I can say with assurance that the large hole in the right side of the President's head, and the associated tissue damage, is similar to wounds that are produced by varminting bullets when they strike bony surfaces.

From what I know of the way such bullets fragment (not from X-rays, but from probing and picking, from pictures showing cross-sections of gelatin blocks, and from descriptions that I learned from others), the disposition of fragments in the President's brain is similar to that produced by the fragmentation of high velocity frangible bullets when they strike bony surfaces.

The effects of such bullets are becoming better known lately because many wounds suffered in Vietnam are produced by a bullet that falls truly into the class of varminting bullets. I refer to the 5.6 mm. (55 grain) round that is fired in the M-16 rifle. Although that bullet is full metal cased, the jacket is so thin that it seems not greatly to inhibit the severe fragmentation of the bullet. The 5.6 bullet bursts frequently on hard and soft surfaces, especially since normally in Vietnam it is fired at nearby targets, so that its velocity is still very high when it reaches its target. (The civilian version of the 5.6 is the .223 Remington; the two cartridges are identical, except that the .223 is equipped with a soft-nose bullet.) I have seen pictures of wounds produced by the 5.6 in humans. They are not different from wounds produced by the cartridges that I mentioned above. From the verbal account of a person who viewed X-rays of victims of the 5.6, I know that they burst severely even when they strike soft parts of the body.

The first two sentences in p.2 of your letter presuppose that the bullet striking the front part of the head entered at an angle perpendicular to the surface of the skull. (And I think, too, that you may have gallery loads in mind.) In that case I suppose that bone fragments would be driven inward, but there are certain important considerations which greatly diminish the relevance of the assertion that bone fragments should be driven inward.

For one thing, If the bullet struck at a sharp angle to the surface of the skull, it would produce sufficient pressure at the under-surface of the skull (after penetrating) to blow pieces of the skull outward from the head, especially since the skull would already be weakened in that area by the initial bullet impact. (In reference to this instance, I recall a fox that had the top of its head shot off by a .243 Winchester 80 grain ~~bullet~~ soft-nose at a range of about 70 yards. Searching the head, I could find no bone fragments in the wound.)

There is the further consideration that substantial portions of the head-- scalp, skull bone, and brain-- were missing from the area of the large hole in the head. Much had been detached from the head at the instant of wounding, and much was lost while the President's body was moved from place to place throughout the day. Testimonies of several persons disclose that brain matter was oozing from the head hole in the limousine, on the operating table in Dallas, and on the autopsy table at Bethesda. The margins of the skull hole were exceedingly fragile, and became detached by but slight pressure. Fragments not only of metal, but also of bone, that may have been driven into the area of damage would easily have been carried out of it by the means that I have mentioned.

I am convinced that the matter is irrelevant, the matter whether bone fragments were driven into the wound, for we simply cannot know the answer to that question. Even if now we should learn that bone fragments were present ~~in~~ ~~the~~ in the wound, unless they were embedded deeply in the brain, I would make nothing out of it, even though the existence of bone fragments in the large wound would tend to favor my assertions. The reason is that the margins of the skull hole were ~~flaky~~ fragile, flaky, and pieces of bone might have become mixed with the mangled flesh for long periods after the wounding.

It is difficult for me to believe that a projectile burst on contact with the inner surface of the skull, for that supposition does not account for the presence of small fragments at a distance backward from the place where presumably the projectile fragmented. (See p. 17 of my monograph.) Such a projectile would have had to burst on the inner surface of the skull in some area forward of the right ear (Zapruder film shows that the area of the head behind the ear was intact during the seconds instantly after the head wounding.) By reference to the "relativey large" fragments mostly in the front, the Panel implies that some were located at a distance backward in the head. I think it impossible that minute fragments formed from a bullet that burst on the inner surface of the skull at the front not only should reverse their direction, but even penetrate four or five ~~inches~~ inches of brain matter after reversing their direction. I think physical laws simply would not allow ~~that~~ that.

Evident that a projectile did not burst in mid-brain after passing through the back of the skull is forthcoming. Discussion of this matter starts on p. 16 of my monograph. I am confident that evidence bearing on matters to be discussed in paragraphs 54-58 will substantiate the assertion that a lead projectile would not burst into multiple minute fragments, or otherwise shed small fragments of itself, in the course of passage through soft material at a velocity of 1800 feet per second or less.

I agree that the picture which I reproduced in my letter to Hoch does not represent the nature of fragmentation in JFK's brain. But it was not intended to. It happened to be the only one of its kind that was available to me at the time, and was intended merely to illustrate the principle that minute fragments do not penetrate deeply into solids. I think that it did serve as a good illustration of that principle, for the bullet depicted there burst into both large and small pieces. The largest fragments penetrated deeply to a depth of as much as 7 inches, whereas the smallest fragments penetrated to a depth of no more than two inches or so.

I have seen pictures showing the results when ~~fragmenting~~ <sup>frangating</sup> bullets are fired through masonite into gelatin, and plan to secure copies of them for illustration of the principle as it regards frangible bullets.

That deals with the points you raise in your letter. I hope that my remarks are sufficient (with the incomplete monograph) to convince you that my conclusions are correct. More than that, I would like to convince you that no other situation can pertain except that ~~xxxxxxxxxxxxxxx~~ the fragments evolved from a bullet that struck JFK in the right-front part of his head. If you find any objection whatever to the things that I say, please tell me, for I am interested to form ~~an~~ a case so sound that it cannot be assailed by any rational means. I myself shall not be satisfied unless the matter is so firmly established that it unequivocally excludes all other rationally conceivable possibilities. That sounds like a fantastic lot to set forth, but I believe that the issue can be resolved with that degree of certainty. It is in the nature of positive proof that it excludes other possibilities, and I sincerely wish to present proof that is positive.

It is chiefly for that reason that in the monograph I sought to avoid matters of speculation in favor of concentrating on what is known for certain: that ~~the~~ bullet which struck JFK in the head burst very severely; and that minute fragments do not penetrate deeply. That is really the basis of everything.

In an earlier draft I had described the effects of some varminting cartridges, but I deleted that discussion ~~lest~~ it be supposed that I was asserting that one of them was used. I don't think that that is necessarily so, for even a .30 caliber soft-nose fired from a 30/06 cartridge might produce multiple minute fragments (and some larger fragments) when it strikes at close range, when its velocity is ~~xxx~~ still over 3000 feet per second (say, within 50 yards of the target).

I have already taken up too much of your good time, and am beginning to ramble, so I shall stop now.

I am exceedingly grateful for your interest. I hope that you will continue to allow me to tap it, for I think that this matter is pre-eminently important, and I do not wish to run the least risk of being wrong in it.

Yours truly,

*Dick Bernabei*

Dick Bernabei

cc. Meagher, Weisberg